

Application No.: 09/918,267

Case No.: 56649US002

### Remarks

The Office Action dated March 23, 2004 has been received and reviewed. Claims 24 and 52 were cancelled and new claims 63-83 were added. The pending claims are claims 1-23, 25-51, and 53-83. Reconsideration and withdrawal of the rejections are respectfully requested. Applicant's statements made in the Response Under 37 C.F.R. § 1.111 dated January 13, 2004 are incorporated by reference herein.

### Claim Amendments

New claims 63-83 were added. Support for new claims 63-83 can be found, e.g., in the Specification at page 6, line 7, through page 8, line 30. No new matter was added.

### Objection to the Abstract

The Abstract was objected to because the recitation "The disclosure describes..." is a redundant phrase not acceptable for U.S. patent abstracts.

Applicant traverses this objection. However, to further move this case towards issuance, Applicants have amended the Abstract as indicated above. Reconsideration and withdrawal of this objection are, therefore, respectfully requested.

### The 35 U.S.C. § 103 Rejection

Claims 1-62 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bingham et al. (Re. 30,892) in view of Aldridge et al. (U.S. Patent No. 4,817,210).

Applicants traverse this rejection and submit that claims 1-23, 25-51, and 53-83 are not *prima facie* obvious in view of the combination of Bingham et al. and Aldridge et al. for at least the following reasons. To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references must teach or suggest all the claim limitations. See M.P.E.P. § 2143.

Application No.: 09/918,267

Case No.: 56649US002

Claims 1-23, 25-51, and 53-54

Applicants submit that claims 1-23, 25-51, and 53-54 are not *prima facie* obvious because the combination of Bingham et al. and Aldridge et al. does not teach all of the elements of such claims.

For example, independent claims 1, 25, 27, 31, and 53 recite a garment, article, or protective outfit that includes a protective outer layer (or first material as recited in claims 31 and 53) and retroreflective material formed over a portion of the protective outer layer (or on first material) in a non-continuous pattern to define retroreflective regions and non-retroreflective regions arranged such that thermal decay through the portion formed with retroreflective material is substantially equal to thermal decay through the protective outer layer without retroreflective material. Further, for example, independent claims 31-53 recite that the retroreflective material is arranged such that it does not substantially decrease thermal decay through the article.

In contrast to independent claims 1, 25, 27, 31, and 53, Bingham et al. teaches a retroreflective-treated fabric formed, for example, by cascading minute retroreflectorization particles onto a fabric. See Bingham et al., Abstract. Bingham et al. does not teach a non-continuous pattern arranged such that thermal decay through the portion formed with retroreflective material is substantially equal to thermal decay through the protective outer layer without retroreflective material as is recited, e.g., in claim 1. In fact, Bingham et al. is silent regarding the thermal decay of the described fabrics. The addition of Aldridge et al. does nothing to cure the deficiencies already present in Bingham et al. Because Bingham et al. does not teach all of the elements of claims 1, 25, 27, 31, and 53, such claims are not *prima facie* obvious in view of Bingham et al.

However, in the Response to Arguments section, the Examiner alleges that "breathability" as mentioned in Bingham et al. is "analogous to vapor permeability and directly related to thermal decay" and that "thermal decay is directly related to the amount of air that is allowed to pass through a fabric (breathability)." Applicants traverse this allegation. Bingham et al. does not teach or suggest that breathability is equivalent to thermal decay. To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981 (CCPA 1974). In fact, Bingham et al. is silent as to thermal decay. Further, even if thermal decay is "directly related" to breathability as is alleged,

Application No.: 09/918,267

Case No.: 56649US002

such an allegation still does not prove that Bingham et al. teaches that thermal decay through the portion formed with retroreflective material is substantially equal to thermal decay through the protective outer layer without retroreflective material as is recited, e.g., in claim 1.

Further, the Examiner alleges that Applicants have provided the equivalence or relevance of vapor permeability, i.e., breathability to thermal decay in page 4, lines 4-15 of the Specification as filed. Applicants traverse this allegation. Applicants suggest that whether or not vapor permeability is “relevant” to thermal decay is irrelevant. The standard for *prima facie* obviousness is that the combination of cited references must teach all of the elements of rejected claim, not that the combination of references teaches elements that are “relevant” to all of the elements of the rejected claim. Here, Bingham et al. does not teach or suggest a non-continuous pattern arranged such that thermal decay through the portion formed with retroreflective material is substantially equal to thermal decay through the protective outer layer without retroreflective material as is recited, e.g., in claim 1. Absent such teaching or suggestion, the pending claims cannot be *prima facie* obvious.

In addition, Applicants fail to see how the portion of the Specification cited by the Examiner provides the “equivalence” of vapor permeability to thermal decay. Throughout the cited passage, both of the terms “vapor permeability” and “thermal decay” are used, which indicates that such concepts are not “equivalent.” In addition, the cited passage states that the present disclosure provides “techniques for fixing retroreflective material to protective garments” without substantially effecting the vapor permeability of the garment, and the disclosure also provides techniques that can improve thermal decay through an outer shell versus the use of conventional retroreflective material. In other words, the present disclosure provides techniques for addressing the independent concepts of vapor permeability and thermal decay.

Further, the Specification defines vapor permeability and thermal decay as two separate concepts. In general, vapor permeability is a measure of the transfer rate of vapor through a material. *See* Specification, page 6, lines 4-5. And thermal decay is a measure of the rate at which heat can escape through a material. *Id.* at page 6, lines 5-6. In other words, vapor permeability and thermal decay are two separate, distinct concepts, not equivalent concepts.

Application No.: 09/918,267

Case No.: 56649US002

Because the combination of Bingham et al. and Aldridge et al. does not teach all of the elements of independent claims 1, 25, 27, 31, and 53, such claims are not *prima facie* obvious in view of Bingham et al. and Aldridge et al.

Dependent claims 2-23, 26, 28-30, 32-51, and 54, which depend from one of independent claims 1, 25, 27, 31, 53, are not *prima facie* obvious for the same reasons as presented above for independent claims 1, 25, 27, 31, and 53. In addition, each of these dependent claims recite additional elements that further support patentability when combined with independent claims 1, 25, 27, 31, and 53.

For example, claim 2 recites that a surface area of the non-retroreflective regions includes at least 20% of a total surface area of the retroreflective material. In contrast to claim 2, the Examiner alleges that Bingham et al. teaches a very sparse retroreflective printing treatment having continuous retroreflective areas of the treatment on the fabric that should be less than .5 cm, preferably less than .25 cm, and more preferably less than 1 mm. The Examiner alleges that these small dimensions would result in surface area percentages in the range of those recited in the pending claims of the present invention. Applicants traverse this allegation.

The portion of Bingham et al. cited by the Examiner is teaching that the portions of the continuous retroreflective areas should be less than .5 cm. In other words, Bingham et al. teaches that the continuous areas of the treatment on the fabric should be less than .5 cm. The portion of Bingham et al. cited by the Examiner does not teach or describe the surface area of non-retroreflective regions of the fabric compared to retroreflective regions of the fabric, only that continuous pieces or chunks of retroreflective material be less than .5 cm. Even though Bingham et al. teaches that the continuous retroreflective areas of retroreflective material is less than .5 cm, several continuous retroreflective pieces could be located against each other, resulting in little or no non-retroreflective regions of the fabric. Therefore, the Examiner's allegation that the small dimensions of retroreflective material taught by Bingham et al. would result in surface area percentages in the range of those recited in the pending claims is not accurate.

Further, for example, claim 7 recites that the retroreflective material has a reflective brightness greater than 50 candelas/(lux\*meter<sup>2</sup>). Bingham et al., on the other hand, explicitly teaches away from having a retroreflectivity of greater than 50 candelas/(lux\*meter<sup>2</sup>). Bingham et al. states that "to minimize daytime visibility, the [retroreflective] treatment usually provides

Application No.: 09/918,267

Case No.: 56649US002

less than 20, more often less than 10, and most often less than 5, candelas per square meter of treated surface per lux of incident light." Bingham et al., column 8, lines 40-44. A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

Further, for example, claim 12 recites that the non-continuous pattern forms a checkerboard-like configuration. In contrast to claim 12, neither Bingham et al. nor Aldridge et al. teach a non-continuous pattern that forms a checkerboard-like configuration.

The Examiner, however, further alleges that the elements of claims 2-4, 7-8, 12-16, 18-19, 21, 25-26, 34-36, 39-40, 42-45, 48-49, 51, and 53-54 are arbitrary and unsupported by the specification. The Examiner further alleges that these unsupported elements cannot be a basis for patentability. In support of this allegation, the Examiner cites *In re Woodruff*, 919 F.2d 1575, 1578, 16 U.S.P.Q.2d 1934 (Fed. Cir. 1990). Applicants traverse this allegation.

Applicants submit that *In re Woodruff* is not of relevance to the patentability of the pending claims. For example, *In re Woodruff* held that, in situations where a claimed range overlaps with ranges found in the prior art, the applicant "must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range." *In re Woodruff*, 919 F.2d 1575, 1578, 16 U.S.P.Q.2d 1934 (Fed. Cir. 1990); see also M.P.E.P. § 2144.05. In contrast to *In re Woodruff*, the pending claims do not contain ranges that overlap with ranges found in the prior art. For example, claim 7 recites that the reflective material formed over a portion of the protective outer layer has a reflective brightness greater than 50 candelas/(lux\*meter<sup>2</sup>). Bingham et al., on the other hand, explicitly teaches away from having a retroreflectivity of greater than 50 candelas/(lux\*meter<sup>2</sup>). Bingham et al. states that "to minimize daytime visibility, the [retroreflective] treatment usually provides less than 20, more often less than 10, and most often less than 5, candelas per square meter of treated surface per lux of incident light." Bingham et al., column 8, lines 40-44. In other words, claim 7 does not involve a situation of overlapping ranges with the teachings of Bingham et al.

Instead, Applicants submit that the Examiner is applying standards of nonobviousness for overlapping claimed ranges to claims currently pending in this case that do not contain such overlapping ranges with the cited references. See, e.g., M.P.E.P. 2144.05 ("Applicants can rebut

Application No.: 09/918,267

Case No.: 56649US002

a *prima facie* case of obviousness based on overlapping ranges by showing the criticality of the claimed range.). See also *In re Woodruff*, 919 F.2d 1575 (Fed. Cir. 1990) ("The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims....In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range.").

Even if Bingham et al. disclosed overlapping ranges, a *prima facie* case built on such overlapping ranges can be rebutted by showing that the art, in any material respect, teaches away from the claimed invention. See *In re Geisler*, 116 F.3d 1465 (Fed. Cir. 1997). Bingham et al. explicitly teaches away from having a retroreflectivity of greater than 50 candelas/(lux\*meter<sup>2</sup>). Bingham et al. states that "to minimize daytime visibility, the [retroreflective] treatment usually provides less than 20, more often less than 10, and most often less than 5, candelas per square meter of treated surface per lux of incident light." Bingham et al., column 8, lines 40-44. Because Bingham et al. teaches away from the present invention as claimed, e.g., in claim 7, any overlapping of ranges does not render claim 7 *prima facie* obvious.

For at least the above reasons, Applicants submit that claims 1-23, 25-51, and 53-54 are patentable over Bingham et al. in view of Aldridge et al. Reconsideration and withdrawal of the rejections are respectfully requested.

#### Claims 55-62

Claims 55-62 were also rejected as being unpatentable under 35 U.S.C. § 103(a) over Bingham et al. in view of Aldridge et al.

Applicants traverse this rejection and submit that claims 55-62 are not *prima facie* obvious because the combination of Bingham et al. and Aldridge et al. does not teach all of the elements of claims 55-62.

For example, claim 55 recites a method that includes screen printing an adhesive pattern on a protective garment, and pressing retroreflective beads on the adhesive pattern to create a retroreflective pattern that is arranged such that vapor permeability through the protective garment in portions having the retroreflective pattern is substantially the same as vapor permeability through the protective garment in portions of the garment that do not have the

Application No.: 09/918,267

Case No.: 56649US002

retroreflective pattern. Claim 59 recites mixing retroreflective beads into an adhesive material, and screen printing a vapor permeable pattern on a protective garment using the mixture such that vapor permeability through the protective garment in portions screened with the vapor permeable pattern is substantially the same as vapor permeability through portions of the protective garment that are not screened with the vapor permeable pattern.

In contrast to claims 55 and 59, the Examiner has not provide any teachings in either Bingham et al. or Aldridge et al. that disclose the elements of such claims, e.g., screen printing an adhesive on an protective garment (claim 55), or screen printing a vapor permeable pattern on a protective garment using a mixture of retroreflective beads and adhesive material (claim 59). Because the Examiner has failed to show that the combination of Bingham et al. and Aldridge et al. teaches all of the elements of claims 55 and 59, such claims are not *prima facie* obvious in view of the combination of Bingham et al. and Aldridge et al.

Claims 56-58 and 60-61, which depend from either independent claim 55 or 59, are not *prima facie* obvious for the same reasons as presented above for claims 55 and 59. In addition, each of claims 56-58 and 60-61 recite additional elements that further support patentability when combined with either independent claim 55 or 59.

For at least the above reasons, Applicants submit that claims 55-62 are patentable over the combination of Bingham et al. and Aldridge et al. Reconsideration and withdrawal of this rejection are, therefore, respectfully requested.

### Claims 63-83

New claims 63-83 are not *prima facie* obvious in view of the cited references for the same reasons as presented above for claim 1-23 25-51, and 53-62. For example, claim 63 recites a garment that includes a protective outer layer retroreflective material formed over a portion of the protective outer layer in a non-continuous pattern to define retroreflective regions and non-retroreflective regions arranged such that vapor permeability through the portion formed with retroreflective material is substantially equal to vapor permeability through the protective outer layer without the retroreflective material. Claim 63 further recites that the retroreflective material has a reflective brightness greater than 50 candelas/(lux \* meter<sup>2</sup>).

Application No.: 09/918,267

Case No.: 56649US002

In contrast to claim 63, Bingham et al. does not teach retroreflective material that has a brightness greater than 50 candelas/(lux \* meter<sup>2</sup>). In fact, Bingham et al. explicitly teaches away from having a retroreflectivity of greater than 50 candelas/(lux\*meter<sup>2</sup>). Bingham et al. states that "to minimize daytime visibility, the [retroreflective] treatment usually provides less than 20, more often less than 10, and most often less than 5, candelas per square meter of treated surface per lux of incident light." Bingham et al., column 8, lines 40-44. The addition of Aldridge et al. does not cure the deficiencies already present in Bingham et al. Because the combination of Bingham et al. and Aldridge et al. does not teach all of the elements of independent claim 63, such claim is not *prima facie* obvious in view of the cited references.

Claims 64-83, which depend from independent claim 63, are not *prima facie* obvious in view of the cited references for the same reasons as presented above for independent claim 63. In addition, claims 64-83 each recite additional elements that further support patentability when combined with claim 63.

For at least the above reasons, Applicants submit that claims 63-83 are patentable over the combination of Bingham et al. and Aldridge et al. Reconsideration and withdrawal of this rejection are, therefore, respectfully requested.



Application No.: 09/918,267

Case No.: 56649US002

Summary

It is respectfully submitted that the pending claims are in condition for allowance. Reconsideration and withdrawal of all rejections are respectfully requested. The Examiner is invited to contact Applicants' Representatives, at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted,

JUL 23, 2004  
Date

By: J. R. Pralle  
Jay R. Pralle, Reg. No.: 52,131  
Telephone No.: (651) 733-6750

Office of Intellectual Property Counsel  
3M Innovative Properties Company  
Facsimile No.: 651-736-3833